

REMARKS

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Substance of the Interview

Applicant expresses appreciation to the Examiner (Mr. Aaron S. Austin) for the courtesy of the telephone interview held on November 14, 2007, with applicant's representatives, Kumar Maheshwari (Reg. No. 60443). In the interview, the Hasegawa et al. reference was discussed. More specifically, the examiner explained that the examiner was relying on April 20, 2002 as the date of publication for Hasegawa et al.

Status of the Claims:

Claim 1 is amended. Claim 8 is cancelled. Claim 11 is added, no new matter is added.

Claim Rejection under 35 U.S.C. 102 (b) and 35 U.S.C. 103 (a)

Claims 1-5 and 8-10 are rejected under 35 U.S.C. 102 (b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hasegawa et al. ("Preparation of $\text{SmBa}_2\text{Cu}_3\text{O}_y$ Films with improved In-plane Alignment by Pulse Laser Deposition", J. Japan Inst. Metals, 20 April 2002, Vol. 66, No. 4, pages 320-328). This rejection is respectfully traversed due to at least the existence of unexpected properties in the range claimed.

Claim 1, as amended herein, recites, among other features:

wherein the Sm123 thin film is up to 1 μm thick; (Original specification; page 11; line 25).

said thin film is superconductive at a temperature higher than 91 K and has a critical current density of more than $4 \times 10^5 \text{ A/cm}^2$, when a magnetic field of 1T is applied parallel to a c axis of the Sm123 film at a temperature of 77. (Original Specification page 11, lines 11-19)

Hasegawa et al. fail to teach, suggest or render predictable a thin film of up to 1 μm thick. Similarly, Hasegawa et al. fail to teach, suggest, or render predictable a thin film that is superconductive at a temperature higher than 91 K and has a critical current density of more than $4 \times 10^5 \text{ A/cm}^2$, when a magnetic field of 1T is applied parallel to a c axis of the Sm123 film at a temperature of 77.

No Anticipation When Ranges Only Partially Overlapped

Anticipation requires a showing that each limitation of a claim is found in a single reference, either expressly or inherently. *Perricone v. Medicis Pharm. Corp.*, 432 F.3d 1368, 1969 (Fed. Cir. 2005).

Claim 1 recites a Sm123 film thickness of up to 1 μm which can be greater than the 0.4 μm thickness disclosed in Hasegawa et al. Claim 1 as amended recites further features that are not taught, suggested or rendered predictable such as but not limited to a critical current density of more than $4 \times 10^5 \text{ A/cm}^2$, when a magnetic field of 1T is applied parallel to a c axis of the Sm123 film at a temperature of 77. Hasegawa et al. fail to recite at least each of the above listed features. Instead Hasegawa et al. were unable to realize sufficient superconductive characteristics. (Hasegawa et al.; page 3, line 13-14).

Thus every feature of claim 1 is not found in Hasegawa et al., either expressly or inherently. Since, claim 1 as amended herein, is not anticipated by Hasegawa et al, it is believed to be allowable.

The existence of unexpected properties in the range claimed

The thickness of the film can be critical to the film's superconductive properties. (Original specification; page 5, line 25; and page 10 lines 17-18) By increasing the film thickness, the applicant's were able to improve the critical temperature (T_c) and the critical current (J_c). (Original specification; page 10, lines 20-26) Thus an increase in film thickness of up to 1 μm as shown in Fig. 7 further increased the critical current property (J_c) in the Sm123/BZO thin film to 4×10^5 . Applicant's further remark that "the differences in the interface structures as well as the crystal structures in the vicinity of the interfaces

significantly affect the film properties when the film thicknesses are increased.” (Original specification; page 12 lines 1 to 4).

Thus unlike the authors of the Hasegawa et al. reference the applicants were able to achieve the unexpected results of an increased critical current which is significant improvement in the superconductor thin film art.

Similarly, the applicants were able to further enhance the critical current by applying a magnetic field as shown and further discussed in the disclosure of Figs. 7 and 8. (Original specification; page 12, lines 15-17) Accordingly, claim 1 recites a magnetic field of 1T is applied parallel to a c axis of the Sm123 film at a temperature of 77.

In contract, the authors of Hasegawa et al. were unable to attain sufficient superconductive characteristics. (Hasegawa et al.; page 3, lines 12-16) Thus attaining a thin film with a thickness of up to 1 μm that is superconductive at a temperature higher than 91 K with a critical current density of more than $4 \times 10^5 \text{ A/cm}^2$ are unexpected results, not taught, suggested or rendered predictable by Hasegawa et al. reference. Thus one of ordinary skill in the art would find the results achieved by the applicants to be surprising or unexpected.

Therefore, claim 1 is believed to be allowable over Hasegawa et al. Because claims 2-5 and 9-11 depend from claim 1, they are believed to be allowable for at least the same reasons claim 1 is believed to be allowable.

New Claim

New claim 11 recites a film thickness of more than 0.4 μm to 1 μm . (Underline added for emphasis) The subject matter of the new claims is disclosed in the original specification for example, at page 11, line 11, line 25 and page 12 line 8, thus no new matter is added.

New claim 11 further distinguished the embodiment of the present invention from Hasegawa et al. In particular, Hasegawa et al. fails to teach suggest or render predictable a film thickness of more than 0.4 μm to 1 μm . Thus claim 11 is believed to be allowable.

Conclusion:

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petition for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

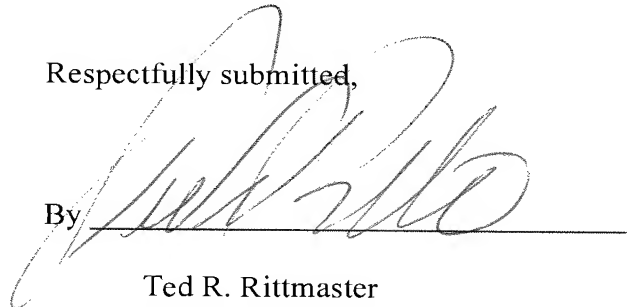
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12/19/07

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Respectfully submitted,

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